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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,421	12/19/2005	Kiyoshi Arita	39102	6392

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EXAMINER	
LUND, JEFFRIE ROBERT	
ART UNIT	**PAPER NUMBER**
1792	

NOTIFICATION DATE	DELIVERY MODE
02/08/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/561,421	ARITA ET AL.	
	Examiner	Art Unit	
	Jeffrie R. Lund	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 9/07.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-6 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US 5,625,526) in view of Barnes et al. (US 5,670,066), Ito et al. (US 6,815,646 B2), Zhao et al. (us 5,589,003) and Mulligan et al. (US 6,164,633). Watanabe teaches:

i. A plasma processing apparatus (Fig. 31), comprising: an integrally formed electrode member (520), which is located in a process chamber (504) that defines a-closed space; a pressure reduction unit (526), for discharging a gas from the closed space to reduce pressure; a gas supply unit (517), for

supplying a plasma generation gas to the closed space in which the pressure has been reduced; an opposing electrode (518), positioned opposite the electrode member; a plasma generator (521), for applying a high frequency voltage between the electrode member and the opposing electrode to set the plasma generation gas into a plasma state; a DC voltage application unit (not shown, see Abstract), for applying a DC voltage to the electrode member to electrostatically attract the wafer positioned on the mounting face; a cooling unit (524) for cooling the electrode member - in claims 1 and 9; a ceramic film (416) made of aluminum oxide on a surface of an electrode member (414) - in claims 6 and 13; and a polyimide resin film (417) on a surface of an electrode member (414) - in claims 11 and 12. (Figs. 27 and 31; Col. 18, lines 31-35; Col. 19, lines 43-64)

Watanabe does not teach:

i. An apparatus that can handle at least two wafers, a large wafer and a small wafer; the mounting face of the electrode member is divided into a first area, which is located in the center of the mounting face, wherein a metal, the material used for the electrode member, is exposed, a first insulating area, the surface of which is covered with an insulating film, that encloses, like a ring, the outer edge of the first area, a second area, wherein the metal is exposed, that is extended, like a ring, around the outer edge of the first insulating area, and a second insulating area, the surface of which is covered with an insulating film, that encloses, like a ring, the outer edge of the second area, wherein a boundary between the first area and the first insulating area is designated inside the outer

edge of a small wafer positioned in the center of the mounting face, and a boundary between the first insulating area and the second area is designated outside the outer edge of the small wafer, and wherein a boundary between the second area and the second insulating area is designated inside the outer edge of a large wafer positioned in the center Of the mounting face, and the second insulating area extends outward from the large wafer- in claims 1 and 9; a plurality of suction holes are formed in the first and the second areas and a vacuum suction unit is provided to create a vacuum and produce suction that, through the suction holes, draws the wafer to and holds the wafer on the mounting face - in claim 9; and wherein a cover member, which has a ring shape and which is detachable from the mounting face, is closely adhered across the entire face of the second area to completely cover all the suction holes formed in the second area - claim 2, in claim 9; the cover member, which has a resin layer deposited on its lower face, is attached to the mounting face when a small wafer is to be processed, or is removed from the mounting face when a large wafer is to be processed - claims 3 and 10, in claims 11 and 12; the cover member is made of ceramic - claim 4; and the cover member is formed of a thick outer ring and a thin internal ring that engages the thick outer ring - claim 5.

Mulligan teaches a vacuum chuck for a semiconductor processing apparatus comprising:

i. A mounting surface (28, 30) constructed to accommodate at least two different-sized wafers - in claims 1 and 9. (Figs. 1-3, Col. 4, lines 12-15)

Barnes teaches a plasma processing apparatus comprising:

i. The mounting face (36) of the electrode member (30) is divided into a first area (area surrounded by inner portion of 40), which is located in the center of the mounting face, wherein a metal, the material used for the electrode member, is exposed, a first insulating area (inner portion of 40), the surface of which is covered with an insulating film, that encloses, like a ring, the outer edge of the first area, and a second area (36), wherein the metal is exposed, that is extended, like a ring, around the outer edge of the first insulating area - in claims 1, 6, 9, and 13. (Fig. 1, Col. 3, lines 49-63)

Ito teaches components for a semiconductor manufacturing apparatus comprising:

i. A vacuum chuck (101, Fig. 5g) with a plurality of suction holes (8) formed in chuck body and a vacuum suction unit (not shown) is provided to create a vacuum and produce suction that, through the suction holes, draws the wafer to and holds the wafer on the mounting face - in claim 9. (Fig. 5, Col. 15, lines 32-37)

Zhao teaches a semiconductor processing apparatus comprising:

i. A cover member (12), which has a ring shape and which is detachable from the mounting face (16) - in claims 2 and 9; the cover member is made of ceramic (aluminum oxide) - claim 4, in claim 11; and the cover member is formed of a thick outer ring (24) and a thin internal ring (22) that engages the thick outer ring - claim 5, in claim 12. (Fig. 1; Col. 3, line 30 to Col. 4, line 53)

Applicant's claim requirements of "performs a plasma process for the reverse face of a wafer for which an insulating sheet is adhered to the obverse face" in claims 1 and 9, and "the cover member is attached to the mounting face when a small wafer is to be processed, or is removed from the mounting face when a large wafer is to be processed" in claims 3 and 10 are claim requirements of intended use in the pending apparatus claims that the apparatus of Watanabe, Mulligan, Barnes, Ito, and Zhao can perform. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is Capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Watanabe with Mulligan's multiple size wafer support, Barnes' electrostatic chuck with annular insulating members, Ito's vacuum suction holes, and Zhao's substrate support cover for the modified apparatus of Watanabe, Mulligan, Barnes, Ito, and Zhao; it would also have been obvious to add the resin layer of Watanabe to the cover of Zhao; select the size of wafers to fit the modified apparatus, or optimize the dimensions of the modified apparatus to accommodate

different-sized wafers; and optimize the dimensions of the modified apparatus so the support cover can shield the second area.

Motivation for adapting Mulligan's multiple size wafer support for the apparatus of Watanabe, Mulligan, Barnes, Ito, and Zhao is to eliminate the need for separate apparatuses when different-sized wafers are to be processed.

Motivation for combining Watanabe's ceramic film with Barnes' segmented electrostatic chuck for the apparatus of Watanabe, Mulligan, Barnes, Ito, and Zhao is to be able to isolate the object (wafer) supported on the surface of the face of a single electrode member.

Motivation for adapting Ito's vacuum suction holes for the apparatus of Watanabe, Mulligan, Barnes, Ito, and Zhao is to attract the wafer to the support through vacuum force.

Motivation for adapting Zhao's substrate support cover for the modified apparatus of Watanabe, Mulligan, Barnes, Ito, and Zhao is to protect the unused portion of the substrate support from plasma damage.

Motivation for adding Watanabe's resin layer to Zhao's cover member is to provide an alternate placement for the resin layer. Further, it is well established that the rearrangement of parts is considered obvious to those of ordinary skill (In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950); In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975); Ex parte Chicago Rawhide Manufacturing Co., 223 USPQ 351,353 (Bd. Pat. App. & Inter. 1984); MPEP 2144.04)

Motivation for selecting the size of wafers to fit the modified apparatus, or optimizing the dimensions of the modified apparatus to accommodate different-sized wafers is to eliminate the need for multiple apparatuses for processing different-sized wafers. Further; it is well established that changes in apparatus dimensions are within the level of ordinary skill in the art. (Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04)

Motivation for optimizing the dimensions of the modified apparatus of Watanabe, Mulligan, Barnes, Ito, and Zhao so the support cover can shield the second area is to protect the second area from plasma damage and prevent plasma from being vacuumed through the suction holes. Further, it is well established that changes in apparatus dimensions are within the level of ordinary skill in the art. (Gardner V. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04)

4. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US 5,625,526) in view of Barnes et al. (US 5,670,066), Ito et al. (US 6,815,646 B2), Zhao et al. (US 5,589,003) and Mulligan et al. (US 6,164,633) as applied to claims 1-6 and 9-13 above, and further in view of Garabedian et al. (US 2002/0179246 A1) and Sago et al. (US 2003/0198005 A1).

Watanabe, Barnes, Ito, Zhao, and Mulligan do not teach:

i. A blocking member, having a ring shape, that is attached to the second area, when the cover member is mounted on the mounting face, to block the plurality of suction holes in the second area, wherein the cover member completely covers the blocking member - in claim 7.

ii. The blocking member is formed by adhering, to one face of a ring-shaped plate made of the same material as the wafer, an insulating sheet made of the same material as the insulating sheet that is adhered to the wafer - claim 8.

Garabedian teaches a plasma processing apparatus comprising:

i. A lower ring-shaped member (lower ring 22) covered by an upper ring-shaped member (upper ring 22), wherein both members are disposed on top of a substrate support (9) as plasma shields - in claim 7. (Fig. 6, Para. 39 and 44)

Sago teaches a substrate processing apparatus comprising:

i. A correction ring (46) disposed around a substrate (9), and the ring is made of the same material as the substrate - in claim 8. (Fig. 3, Para. 38)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to adapt the two-ring shield concept of Garabedian for the apparatus of Watanabe, Mulligan, Barnes, Ito, and Zhao; and construct the lower shield with the same material as the substrate as taught by Sago. It would also have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the dimensions of the shields to cover the second area, and mimic the substrate exactly by including an insulation sheet.

Motivation for adapting the two-ring shield of Garabedian for the apparatus of Watanabe, Mulligan, Barnes, Ito, and Zhao; and constructing the lower shield with the same material as the substrate as taught by Sago is to maintain protection from plasma damage as taught by Garabedian, while the modified lower ring prevents non-uniformity of the process at the edge of the substrate by keeping temperature uniform at the periphery of the substrate.

Motivation for optimizing the dimensions of the shields to cover the second area is to protect the unused portion of the substrate holder from damage by plasma.

Motivation for mimicking the substrate exactly by including an insulation sheet is to ensure heat transfer properties are identical in both the real substrate and the dummy substrate.

Applicant's claim requirement of "to block the plurality of suction holes in the second area" in claim 7 is a "claim requirement of intended use in the pending apparatus claim that the apparatus of Watanabe, Mulligan, Barnes, Ito, Zhao, Garabedian, and Sago can perform. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

Response to Arguments

5. Applicant's arguments filed November 6, 2007 have been fully considered but they are not persuasive.

In regard to the argument that:

> However, as disclosed in Barnes, insulating coating 40 covers the walls and base of the annular groove formed in block 34. The insulating coating 40 is not an insulating film covering a surface of the face of a single electrode member, as required by the present claims.

The Examiner disagrees. Barnes's insulating coating 40 does cover the walls and base of the annular groove in block 34. The walls and base of the annular groove in block 34 are part of the surface of the face of a single electrode member. Applicant appears to be suggesting that the surface must be flat, and that the insulation is on the flat surface. If this is desired, then it must be claimed. Currently the claim only requires that the surface be covered, and the term surface is broad and includes any type of surface, including grooves.

In regard to the argument that:

> Further, the first electrode 34 and second electrode 38, relied upon by the Examiner, are not first and second areas of the face of the single electrode member, as required by the present claims. In fact, the insulating coating 40 is provided in Barnes so that the first and second electrodes 34, 38 can be at different electric potentials relative to each other and the housing.

The Examiner agrees. The motivation has been modified to teach and suggest the use of an insulation layer on a surface of the face of a single electrode member to isolate objects supported on the insulation member.

In regard to the argument that: "there is no motivation to apply the insulating coating of Barnes on outer diameter portions corresponding to the different sized

wafers", the Examiner disagrees. Barnes teaches insulating objects supported by the surface of the face of the single electrode member, as discussed above; and Zhao further teaches covering the radially outward surface of the face of a single electrode member not covered by the wafer to prevent damaging the surface of the face of the single electrode member through exposure to the plasma. Thus, the motivation to apply the insulating coating of Barnes on outer diameter portions corresponding to the different sized wafers is provided by Barnes and Zhao.

Conclusion

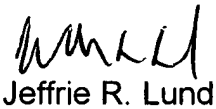
6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (10:00 am - 9:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jeffrie R. Lund
Primary Examiner
Art Unit 1792

JRL
2/1/08